#8

SEQUENCE LISTING

<110> Fisher, Paul B.
      Leszcyniecka, Magdalena

<120> GENES DISPLAYING ENHANCED EXPRESSION DURING CELLULAR SENESCENCE AND
TERMINAL CELL DIFFERENTIATION AND USES THEREOF

<130> A34584-A-PCT-USA (070050.1664)

<140> PCT/US00/02920
<141> 2000-02-02

<150> US 09/243,277
<151> 1999-02-02

<160> 51

<170> FastSEQ for Windows Version 4.0

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<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 534, 590
<223> a or g or c or t

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<211> 678
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<213> Homo sapiens

<220>
<221> unsure
<222> 566, 669
<223> a or g or c or t

<400> 2

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gaagatgatg gaaatcatga cccgagaggt gcagacaaat gacttgaaag aagtggtcaa 420
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tctccatgat gtcttcgtta gaaaagtaaa aatgctgaag aagcccaagt ttgaattggg 540
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aacaggtgct aaaagtttga cgactgatg gatattgaac cccagtccaa gaatctggtt 660
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<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 656
<223> a or g or c or t

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taaagaggat gcatatgaat ataaaagcg tttaacctta gaccatgaga gagtaaatt 480
gagccttgct gaaatttatg aacaggagta catcaaactc aaccagcaaa aaacagcaga 540
agaagaaaat ccagaacatg tagaaattca gaagatgatg gattccctct tcttaaattg 600
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aaatctgcca                                                        670

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<211> 675
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 530, 534, 650, 651, 655
<223> a or g or c or t

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ggtagtgagg aaatgggcca gggcgcagtc agctccagtc ccagagagct cctctctaac 180
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gtttgagacc atcctggcta acacagtgaa atcccgtctc tactaaaaat acaaaaaatt 480
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ggcgtgaacc tggaaggaag aagttgcagg tgagcccaag attgcgcccc cttgcactcc 600
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<210> 5
<211> 460
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
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      456, 457
<223> a or g or c or t

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<211> 445
<212> DNA
<213> Homo sapiens

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ggtgctgaaa tccggcatgt tcttgtcaca ctgggtgaga agatgacaga ggaagaagta 180
gagatgctgg tggcagggca tgaggacagc aatggttgta tcaactatga agagctcgtc 240
cgcatggtgc tgaatggctg aggaccttcc cagtctcccc agagtccgtg cctttccctg 300
tgtgaatttt gtatctagcc taaagtttcc ctaggctttc ttgtctcagc aactttccca 360
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ccctcggaaa aaaaaaaaaa aaaaa                                       445

<210> 7
<211> 666
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 483, 498, 527
<223> a or c or g or t

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aataaattgt tttgagtgtt ttttgagccc cagacaaata atgttttaaa gttatcccct 180
tgctacttta ctgatacctt tatcattcct gagacagttt gctaatttaa aaatgtagca 240
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ccagagaaag atccaaaaca ctactcagct ctcttgcact gaggaaattt ttccccctac 360
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attgactcct ggcctacatc agccaaactt aaccttggtg gggtttggat ttgatagcca 420
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tgncttcctt tatattgngt cttttttatg ttgcatgttg cttttgntat cagcctgatt 540
ttttgctcag tatatgatag ttctgctgat ggtttggtta ttgggcagac atatcttcat 600
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aatatc                                                          666


<210> 8
<211> 409
<212> DNA
<213> Homo sapiens


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aagcccccat tcgtataata attacatcac aagacgtctt gcactcatga gctgtcccca 180
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cacgaccggg ggtatactac ggtcaatgct ctgaaatctg tggagcaaac cacagtttca 300
tgcccatcgt cctagaatta attcccctaa aaatctttga aatagggccc gtatttaccc 360
tatagcaccc cctctacccc ctctagagca aaaaaaaaa aaaaaaaa            409


<210> 9
<211> 667
<212> DNA
<213> Homo sapiens


<220>
<221> unsure
<222> 436, 663
<223> a or c or g or t


<400> 9
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tctgcagtgg aaaaaaagcc cacatttgag gtggctcatc tagacctggc aagaatgtat 180
atagaagcag gcaatcacag aaaagctgaa gagaattttc aaaaattgtt atgcatgaaa 240
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gcatcattaa caagggataa aagtatcaat tctttgaaga aattggtttt aaggaaactt 420
cggagaaagg cattanactg gaaagcttga gcctccttgg gttcgtctac aaattggaag 480
gaaatatgaa tgaagccctg gagtactatg agcgggccct gagactggct gctgactttg 540
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tatgctaaca tttactaatc atcttttctg cttactggtt tcagaacctt ataattccct 660
ggnatga                                                         667


<210> 10
<211> 672
<212> DNA
<213> Homo sapiens


<220>
<221> unsure
<222> 585
<223> a or c or g or t


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<210> 11
<211> 672
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 585
<223> a or c or g or t

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<210> 12
<211> 669
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 587, 595, 600, 660, 662
<223> a or c or g or t

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aagaacatga caaccaagca aatgtgagga gtctggtgac ctggggcaac tttgcctgga 180
tgtattacca catgggcaga ctggcagaag cccagactta cctggacaag gtggagaaca 240
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ccctgaagct tcaggatgaa ggacaggaaa cttgaaggag aaaagtncat tgaanaactn 600
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tntgggata                                                         669
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<210> 13
<211> 702
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 530, 585, 600, 616, 654, 702
<223> a or c or g or t

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tatcaggaag atatcggcga cattgtggac ttggcttcag tgaggtagaa gaccatgatg 180
gagaaggtga tgtggctgga gatgatgatg atgacgatga tgattcacct gatcctgaaa 240
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ataaaataag aaatanttcc agtactcact tccttctatt agcatctcac cctntaattc 660
ccttatgggg aaatgcttct tttggttggg atagctttt an                     702
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<211> 312
<212> DNA
<213> Homo sapiens

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gaaagtggaa gcaaagaaag aagaatccga ggagtctgat gatgacatgg gctttggtct 240
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aaaaaaaaaa ac                                                     312
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<210> 15
<211> 391
<212> DNA
<213> Homo sapiens

<400> 15
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cgctggtttt cctcaaggct ctctgatggt tctaacctgg taggatccac ttcaaagcta 120
acatgttgcc aatcagagga tgtgatcaca attcgtaata aaggatccag gagtttttgt 180
agataggtag caccatatac cttgaaacag aatgtcatta ttttactggc caagctgttg 240
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cggtacccaa ttcgccctat agtgagtcgt t                                391
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<210> 16
<211> 720
<212> DNA

<213> Homo sapiens

<220>
<221> unsure
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        532, 535, 538, 549, 562, 567, 568,577, 579, 601, 603
<223> a or c or g or t

<221> unsure
<222> 614, 618, 621, 625, 633, 636, 641, 678, 683, 691, 708
<223> a or c or g or t

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ccatcttgag gatgtagggg attatgctgt ctatcgaaac attgccaatg agaccagtaa 180
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ccacagctca gcaaaggctc ctggggtccc gtctgtattg caccagaatc aaaccaacng 360
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aatccaactt tcctaacccc nccnccaaaa aaaanctngg aattcttnac cnggnggnca 540
ccttaaggng gaagccttca tnggaannac ttgctanana ctcatttaaa aaaccgatta 600
ntnccaaccc tgtntttnct gncccnggaa aanacntccc ntgacatatg gctcaaataa 660
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<210> 17
<211> 205
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 158, 159, 161, 163, 176, 182, 186, 189, 191, 193, 197, 1699,
        200, 202, 203
<223> a or c or g or t

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anttcnccnt ntngggngnn gnntt 205

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<211> 691
<212> DNA
<213> Homo sapiens

<220>
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<222> 479
<223> a or c or g or t

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gacaaagaca aattctgttt cttgagaaga gaatattagc tttactgttt gttatggctt 240
aatgacacta gctaatatca atagaaggat gtacatttcc aaattcacaa gttgtgtttg 300
atatccaaag ctgaatacat tctgctttca tcttggtcac atacaattat ttttacagtt 360
ctcccaaggg agttaggcta ttcacaacca ctcattcaaa agttgaaatt aaccatagat 420
gtagataaac tcagaaattt aattcatgtt tcttaaatgg gctactttgt cctttttgnt 480
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ctgacaactt gaataataca ccagagataa tatgagaatc agatcatttc aaaactcatt 600
tcctatgtaa ctgcattgag aactgcatat gtttcgctga tatatggggt tttccatttg 660
cgaatgggtc cattctctct ccggactttt t                                691

<210> 19
<211> 483
<212> DNA
<213> Homo sapiens

<400> 19
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aattgatctg tgatcaataa tactaatatg ttatctttta ccgtattctg cctctcacta 120
ttgattttaa ttagttagga gtatttgagc tgttatttct tgagcttaat attttttag 180
agttaactct ttaaggagat aatcatggct gtagacaagg ccagggctgg ctgacgtgcc 240
ttagaaagtt tgaatgcaat aaagcggtgt ttggcgttct cctgcattgt agtgcgggtt 300
acaaatgcta attgttccgt caactggtgt cagcagatga gccgcccact acagacggct 360
actgcccagg gacctgccca ggccccaccc aagggctccc aagggttgag atttctgcag 420
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taa                                                               483

<210> 20
<211> 589
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 556, 558, 587
<223> a or c or g or t

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cctccgtggg atttcaggga atttgaagta gaaaaacaga ctgcagaaga acggggcttt 180
acgccattgg aaacctcaag gaaaactcca gattccagac cttccttgga agaaaccttt 240
gaaattgaaa tgaatgaaag tgacatgatg ttagagacat ctatgtcaga ccacagcacg 300
tgactccagt cagtggtcct ggtcccactg tcccagtgta ggttagtatt ccttcacatc 360
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taggaacaga gacccgcctt aagagactgg atcgcacacc tttgcaacag atgtgttctg 480
attctctgaa cctacaaaat agttatacat agtggaataa agaaggtaaa ccatcaaaaa 540
aaaaaaaaaa aaaccncngg gggggcccgg gcccaatttg cccttangg               589

<210> 21
<211> 713
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 389, 396, 400, 409, 418, 429, 463, 468, 520, 556, 575, 591,
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          594, 613, 635, 641, 650, 666, 680, 682, 700, 704
`<223> a or c or g or t

<400> 21
aattcaagtg cctgattaat tgaggtggca acatagtttg agacgagggc agagaacagg 60
aagatacata gctagaagcg acgggtacaa aaagcaatgt gtacaagaag actttcagca 120
agtatacaga gagttcacct ctactctgcc ctcctcatag tcataatgta gcaagtaaag 180
aatgagaatg gattctgtac aatacactag aaaccaacat aatgtatttc tttaaaacct 240
gtgtgaaaaa ataaatgttc caccagtagg gataggggaa aagtaaccaa aagagagaaa 300
gagaaaggaa tgctggttta tctttgtaga ttgtaatcga atggagaaat ttgcagtatt 360
ttagccacta ttaggaattt tttttttttng taaaangaan actgaactnt gttcaaangc 420
tttcatganc ctggtttgaa acggtaggaa agcaccaaaa cgngggancc tggggactaa 480
gggcctggtg caaggacttg ggaaatggca ttgataatan atggggggggt tttcccccct 540
ttaaaaatgt tggatnttaa gggatataac ccttntttta ctccgaaaat nttntgagaa 600
atcccaaaat tcncggtatg cttggaacca ttganatttt ntagggaaan gccttgaata 660
gcctanacct caaagttggn gngaaccaaa attggagccn ttgncccacc tcc   713

<210> 22
<211> 480
<212> DNA
<213> Homo sapiens

<400> 22
cggcacgaga agaagtggta caggaggaat ttgtgatgat gagctgatct taatcaaaaa 60
tactaaggct cgtacgtctg catcgattat cttacgtggg gcaaatgatt tcatgtgtga 120
tgagatggag cgctctttac atgatgcact ttgtgtagtg aagagagttt tggagtcaaa 180
atctgtggtt cccggtgggg gtgctgtaga agcagccctt tccatatacc ttgaaaacta 240
tgcaaccagc atggggtctc gggaacagct tgcgattgca gagtttgcaa gatcacttct 300
tgttattccc aatacactag cagttaatgc tgcccaggac tccacagatc tggttgcaaa 360
attaagagct tttcataatg aggcccaggt taacccagaa cgtaaaaatc taaaatgatt 420
ggtcttgatt tgagcaatgg taaacctcga ggggggggccc ggtacccaat tcgccctata 480

<210> 23
<211> 198
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 21
<223> a or c or g or t

<400> 23
cctgttaaaa gctgttcttg ngtgttacat gtaacagaca tggtaaatat ttgtttacag 60
tctttgttta acaaaccatg catttaagtt taagtgaagt caacaaaaag gaaataggtg 120
tatggatatg tgattttgag attaaagtta gtcttaaaat gtaaaaaaaa aaaaaaaaa 180
aaaaaaaaaa aaaaaaa   198

<210> 24
<211> 414
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 368, 370, 372, 374, 375, 376, 377 383, 386, 389

<223> a or c or g or t

<400> 24
aattcggcac gagaaaagca gtataactgc ctgacacagc gggattgaac gagagaagaa 60
attgttcgtt attgctcaga aaattcaaac acgcaaagat cttatggata aaactcagaa 120
agtgaaggtg aagaaagaaa cggtgaactc cccagctatt tataaatttc agagtcgtcg 180
aaaacgttga cgtgttatag ataagccttg tcattctgta tcaaaaatct gttgtcgttt 240
tctagtaact tcaaattcca ttactccaaa tggcatggtt ttccggtttg taaccataac 300
taaattgtca gtctgacatt taatgtcttt ctatggacaa cattaaatct ccctcccttc 360
tgtagaanan anannnnaaa aanccnccng gggggggccg ggtccccatt cccc 414

<210> 25
<211> 367
<212> DNA
<213> Homo sapiens

<400> 25
aattcggcac gagaaaagca gtataactgc ctgacacagc gggattgaac gagagaagaa 60
attgttcgtt attgctcaga aaattcaaac acgcaaagat cttatggata aaactcagaa 120
agtgaaggtg aagaaagaaa cggtgaactc cccagctatt tataaatttc agagtcgtcg 180
aaaacgttga cgtgttatag ataagccttg tcattctgta tcaaaaatct gttgtcgttt 240
tctagtaact tcaaattcca ttactccaaa tggcatggtt ttccggtttg taaccataac 300
taaattgtca gtctgacatt taatgtcttt ctatgggaca acattaaatc tccctccctt 360
ctgtaaa 367

<210> 26
<211> 432
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 386, 389, 390, 397, 404, 409, 413, 416, 424, 426, 430
<223> a or c or g or t

<400> 26
aattcggcac gaggcagact tgaaacagtt ctgtctgcag aatgctcaac atgaccctct 60
gctgactgga gtatcttcaa gtacaaatcc cttcagaccc cagaaagtct gttccttttt 120
gtagtaaaat gaatctttca aaggtttccc aaaccactcc ttatgatcca gtgaatattc 180
aagagagcta catttgaagc ctgtacaaaa gcttatccct gtaacacatg tgccataata 240
tacaaacttc tactttcgtc agtccttaac atctacctct ctgaattttc atgaatttct 300
atttcacaag ggtaattgtt ttatatacac tggcagcagc atacaataaa acttagtatg 360
aaactttaaa aaaaaaaaa aaaacntcnn gggggncccc ggancccant tcnccntata 420
gggngnccgn tt 432

<210> 27
<211> 398
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 288, 298, 345, 348, 352, 357, 358, 368
<223> a or c or g or t

<400> 27
aattcggcac gagtacaaaa ccagttggtg gtgacaagaa cggcggtacc cgggtggtta 60

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aacttcgcaa aatgcctaga tattatccta ctgaagatgt gcctcgaaag ctgttgagcc 120
acggcaaaaa acccttcagt cagcacgtga gaaaactgcg agccagcatt accccgggga 180
ccattctgat catcctcact ggacgccaca ggggcaagag ggtggttttc ctgaagcagc 240
tggctagtgg cttattactt gtgactggac ctctggtcct caatcgantt cctctacnaa 300
gaacacacca gaaatttgtc attgccactt caaccaaaat cgatntcngc antgtannaa 360
atcccaanac atcttactga tgcttacttc aagatgaa                         398


<210> 28
<211> 232
<212> DNA
<213> Homo sapiens


<400> 28
aattcggcac gagattgtat cggttttata ttacctgttc tgcttcacca ggagatcatg 60
ctgctgtgat actgagtttt ctaaacagca taaggaagac ttgctcccct gtcctatgaa 120
agagaatagt tttggagggg agaagtggga caaaaaagat gcagttttcc tttgtattgg 180
gaaatgtgaa aataaaattg tcaactcttt caaaaaaaaa aaaaaaaaa aa           232


<210> 29
<211> 539
<212> DNA
<213> Homo sapiens


<220>
<221> unsure
<222> 495, 508, 511, 526, 529
<223> a or c or g or t


<400> 29
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tttaggtatc tttctgaagt ggcatctgga gacaacaaac aaaccactgt gtcgaactcc 120
cagcaggctt accaggaagc atttgaaatt agtaagaaag aaatgcagcc tacacaccca 180
attcgtcttg gtctggcact aaatttctca gtcttttact atgagattct aaactctcct 240
gaaaaggcct gtagcctggc aaaaacggca tttgatgaag caattgctga attggatacg 300
ctgaatgaag agtcttataa agacagcact ctgatcatgc agttacttag ggacaattca 360
ctctgtggac atcggaaaac caggagacg aaggagacgc tggggaggga gagaactaat 420
gtttctcgtg ctttgtgatc tgttcagtgt cactctgtac cctcaacata tatcccttgt 480
gcgataaaaa aaaanaaaaa aaaaaccntc nggggggggcc ccggancccn attccccct  539


<210> 30
<211> 568
<212> DNA
<213> Homo sapiens


<220>
<221> unsure
<222> 274, 278, 283, 291, 308, 314, 324, 326, 327, 331, 341, 355,
      371, 419, 461, 531, 534, 545, 558
<223> a or c or g or t


<400> 30
attccaaacc aagtagtgtc tgtcagccct cttaactctg tgcacgccct atttcagtct 60
tttacatttg ttcttctagg gaatgtatgc atctctatat atattttccc tctcaaaacc 120
agaacatcaa cagtgctgtt tctgacactt cagacatccc acgcaaagcc acattgaatt 180
tttgccaaat gaaaaacaca tccacaatca agttctaaga gggtgtcaag tggggaatat 240
taatattgtt tattattcaa aaatttagtt tatnaaangg aancaaaacc nttgaacctt 300
ttttcccnaa aaanaaggaa aatntnntgt ngaccaaggg ncgaacctga atccnccttg 360
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aaaaaattgtt ntctcagaaa ggaaaagcgc cctccagttc ttttaccccca agaatttana 420
aaaatttggt ccaagatttt atatgttcag ttgtttatgt ntaaaaataa ctttctggat 480
tttgtggggg aggaccggaa aaggaaggga gtttattcct atgttataca ntanaaactt 540
ccccnataaa atgccatnga tgggttga                                    568


<210> 31
<211> 315
<212> DNA
<213> Homo sapiens


<400> 31
aattcggcac gagcagggag ccgctagtga aaatctggca tgaaataagg actaatggcc 60
ccaaaaaagg aggtggctct aagtaaaact gggattggac agtagtggtg catctggtcc 120
ttgccgcctg agagccccag gagacatcgg ctagagtgac catggctatg ctcccgtctg 180
gaagatgcca gcatctggcc tcccactgtt ttcagctgtg tcccccagtc cgtgtctttt 240
tagaatgtga atgatgataa agttgtgaaa taaaggtttc tatctagttt gtaaaaaaaa 300
aaaaaaaaaa aaaaa                                                  315


<210> 32
<211> 458
<212> DNA
<213> Homo sapiens


<220>
<221> unsure
<222> 342, 355, 365, 368, 375, 381, 385, 414, 445
<223> a or c or g or t


<400> 32
aattcaagga actttacatt gtaagagaaa acaaaacact gcaaagaag tgtgccgact 60
atcaaataaa tggtgaaatc atctgcaaat gtggccaggc ttgggg gaaca atgatggtgc 120
acaaaggctt agatttgcct tgtctcaaaa taaggaattt tgtagtggtt ttcaaaaata 180
attcaacaaa gaaacaatac aaaaagtggg tagaattacc tatcacattt cccaatcttg 240
actattcaga atgctgttta tttagtgatg aggattagca cttgattgaa gattctttta 300
aaatactatc agttaaacat ttaatatgat tatgattaat gnattcatta tgctncagac 360
tgacntanga atcantaaaa ngatngtttt actctgcaaa aaaaaaaaaa aacncggggg 420
ggggcccggc cccaatttcc ccttntgggg ggggttt                         458


<210> 33
<211> 470
<212> DNA
<213> Homo sapiens


<220>
<221> unsure
<222> 434, 459, 460
<223> a or c or g or t


<400> 33
aattcttatc ttccagaggc tacaattatt ataatggaca atacttttac ctttgtctct 60
aaagatcaga ttagtttttat ttgttcactt acgtgctttg attatccct ctgaattata 120
gaccgagtct tgttgtttag cctaagagaa gatttatgta gtaatttctt ctcaggtatg 180
gaaccacggt cataactaac atgttggcca gaatagaacc actggttaaa catatttttat 240
tcaccattaa gtgatctta tcaatattct ggattagaca acaaattacc tttctgggtg 300
tttcttgtaa actatactcc tgtttgaatg ttaaactttg ttgctaaagt ttaattttaa 360
gatgtttgaa tgttcagttt atgtatttga actacaataa accaacccctt tttatataaa 420
aaaaaaaaaa aacntcgagg ggggcccgg ccccaattnn ccctataggg            470
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<210> 34
<211> 261
<212> DNA
<213> Homo sapiens

<400> 34
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ttcactggac tgtcccattt gctggttaaa aggattgggg cccaaatcct ctggcctagc 120
atttctcagt gtttgctatt cagactgtct aaatacagca tgtgacaagc tgaagaagcc 180
aaatctagca gtcatttctg atttcattat attctccccc tcttcctgct aaaaagacaa 240
aaaacaaaaa aaaaaaaaaa a 261

<210> 35
<211> 309
<212> DNA
<213> Homo sapiens

<400> 35
aattcggcac gagctggaca ccaacagtga tggtcagcta gatttctcag aatttcttaa 60
tctgattggt ggcctagcta tggcttgcca tgactccttc ctcaaggctg tcccttccca 120
gaagcggacc tgaggacccc ttggccctgg ccttcaaacc cacccccttt ccttccagcc 180
tttctgtcat catctcccaca gcccacccat cccctgagca cactaaccac ctcatgcagg 240
ccccacctgc caatagtaat aaagcaatgt cactttttta aacatgaaa aaaaaaaaaa 300
aaaaaaaa 309

<210> 36
<211> 243
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 8
<223> a or c or g or t

<400> 36
aattcggntc gagctcgaat aagtttgact tgtgtttat cttaaccacc agatcattcc 60
ttctgtagct caggagagca cccctccacc ccatttgctc gcagtatcct agaatctttg 120
tgctctcgct gcagttccct ttgggttcca tgttttcctt gttccctccc atgcctagct 180
ggattgcaga gttaagttta tgattatgaa ataaaaacta aataacaaaa aaaaaaaaa 240
aaa 243

<210> 37
<211> 650
<212> DNA
<213> Homo sapiens

<220>
<221> unsure
<222> 546, 553, 573
<223> a or c or g or t

<400> 37
aattcggcac gagtaccatt cagcctgaat ttgctagtgt aggctctaaa tcaagtgtag 60
ttccgtgtga acttgcctgc agaacccagt gtgctttgaa gcaatgttgt gggacactac 120
cacaagcccc ttctggaaag gatgcagaaa agaccccagc agttagcatt tcttgtttag 180

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aacttagtaa caatctagag aagaagccca ggaggactaa agctgaaaac atccctgctg 240
ttgtgataga gattaaaaac atgccaaaca aacaacctga atcatctttg tgagtcttga 300
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tctaagtttg ccaagtagtg taattgaagt ccttgtctgg tcacacagtt taattctatt 420
tttgtaagaa cataatggga ctgcataaca gagttctata ttacaatttt gtgattatta 480
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ttttgnttaa agnaagttaa accttatata acntaatgac atttgatttc tggattttcc 600
catgataaaa aattaggggg gataaataaa aatggttact ggaatttcaa        650


<210> 38
<211> 687
<212> DNA
<213> Homo sapiens


<220>
<221> unsure
<222> 444, 448, 451, 460, 461, 462, 468, 471, 476, 490, 506, 510,
     514, 522, 524, 535, 550, 563, 567, 568, 573, 579, 587, 590
<223> a or c or g or t

<221> unsure
<222> 592, 593, 596, 608, 615
<223> a or c or g or t


<400> 38
gaattcggca cgagattttt ttatttttca ttttcccctt aggcatattt agtattttc 60
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tttttatct ggatgtaaca ttgttgcatt agcttttaa ctttcccaag taattgaata 240
cattttatta cttggacttt tataaactct ttccctaccc actataaatg agacattcac 300
agcgttcaag tttgtattaa aggaaaggat tagtttgacc ccttcttttg atggttaatg 360
catacatgca gttaaatccc tttatgcaaa tgtgacactg ctttactagg tctttttagtt 420
atttatttat tttttttttt ttgnccantt nattttttan nntaattnct naaacncatt 480
atttttttn aaaataaaaa aacacnatcn tttnttttta ananttaaac cttantaaat 540
ttttcccccn aaaaaaaatc ccntaanntt ttnaatttnt tgaattnaan annaantaaa 600
ccttttttnaa aaccnggcaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 660
aaaaaaaaaa aaaaaaaaaa aaaaaaa                               687


<210> 39
<211> 2549
<212> DNA
<213> Homo sapiens


<400> 39
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atatcttctg gaaagctggc cagatttgca gatggctctg ctgtagtaca gtcaggtgac 180
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agaagagagg ttggtacttc tgataaagaa attctaacaa gtcgaataat agatcgttca 360
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gcagtagatg gtgtaaatga gcctgatgtc ctagcaatta atggcgcttc cgtagccctc 480
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ggagaatatg ttgttaaccc aacaagaaaa gaaatgtctt ctagtacttt aaatttagtg 600
gttgctggag cacctaaaag tcagattgtc atgttggaag cctctgcaga gaacatttta 660
cagcaggact tttgccatgc tatcaaagtg ggagtgaaat atacccaaca aataattcag 720
ggcattcagc agttggtaaa agaaactggt gttaccaaga ggacacctca gaagttattt 780
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attcgagtaa cccatatttg tttaattgta tttacattat aaatcaagaa atatttatta 2520
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<210> 40
<211> 650
<212> DNA
<213> Homo sapiens

<400> 40
ttgaagatta caatggtgac atggacttca aaatagctgg cactaataaa ggaataactg 60
cattacaggc tgatattaaa ttacctggaa taccaataaa aattgtgatg gaggctattc 120
aacaagcttc agtggcaaaa aaggagatat tacagatcat gaacaaaact atttcaaaac 180
ctcgagcatc tagaaaagaa aatggacctg ttgtagaaac tgttcaggtt ccattatcaa 240
aacgagcaaa atttgttgga cctggtggct ataacttaaa aaaacttcag gctgaaacag 300
gtgtaactat tagtcaggtg gatgaagaaa cgttttctgt atttgcacca acacccagtg 360
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gattaaacat cctactgccc taggattaga agttggccaa gaaattcagg tgaaatactt 600
tggacgtgac ccagccgatg gaagaatgag gctttctcga aaagtgcttc               650

<210> 41
<211> 640
<212> DNA
<213> Mus musculus

<400> 41
aatggtgaca tggatttcaa aatagccggt acaaataaag gaataactgc attacaggct 60
gatattaagt tacctggagt accaattaaa attataatgg aagccatcca acaagcgtca 120
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_agtcaggttg atgaagaaac cttctccata tttgcaccaa cacctactgc aatgcatgaa 360
 gcaagagatt tcattacaga aatttgcaga gatgatcaag agcaacaatt agaatttgga 420
 gcagtttata ccgcgacaat aactgaaatc agagacactg gagtgatggt aaaactgtat 480
 ccaaacatga ctgcagtgct gcttcataat tcacaacttg accaacgaaa gattaaacat 540
 cccactgccc taggactaga ggttggccaa gaaattcagg tcaaatactt tggccgtgat 600
 ccagctgatg gaagaatgag gctttctcgt aaagtacttc                        640


<210> 42
<211> 705
<212> PRT
<213> Homo sapiens


<400> 42
Asp Gly Pro Phe Leu Leu Pro Arg Arg Asp Arg Ala Leu Thr Gln Leu
 1               5                   10                  15
Gln Val Arg Ala Leu Trp Ser Ser Ala Gly Ser Arg Ala Val Ala Val
                20                  25                  30
Asp Leu Gly Asn Arg Lys Leu Glu Ile Ser Ser Gly Lys Leu Ala Arg
            35                  40                  45
Phe Ala Asp Gly Ser Ala Val Val Gln Ser Gly Asp Thr Ala Val Met
        50                  55                  60
Val Thr Ala Val Ser Lys Thr Lys Pro Ser Pro Ser Gln Phe Met Pro
65                  70                  75                  80
Leu Val Val Asp Tyr Arg Gln Lys Ala Ala Ala Ala Gly Arg Ile Pro
                85                  90                  95
Thr Asn Tyr Leu Arg Arg Glu Val Gly Thr Ser Asp Lys Glu Ile Leu
            100                 105                 110
Thr Ser Arg Ile Ile Asp Arg Ser Ile Arg Pro Leu Phe Pro Ala Gly
        115                 120                 125
Tyr Phe Tyr Asp Thr Gln Val Leu Cys Asn Leu Leu Ala Val Asp Gly
        130                 135                 140
Val Asn Glu Pro Asp Val Leu Ala Ile Asn Gly Ala Ser Val Ala Leu
145                 150                 155                 160
Ser Leu Ser Asp Ile Pro Trp Asn Gly Pro Val Gly Ala Val Arg Ile
                165                 170                 175
Gly Ile Ile Asp Gly Glu Tyr Val Val Asn Pro Thr Arg Lys Glu Met
                180                 185                 190
Ser Ser Ser Thr Leu Asn Leu Val Val Ala Gly Ala Pro Lys Ser Gln
            195                 200                 205
Ile Val Met Leu Glu Ala Ser Ala Glu Asn Ile Leu Gln Gln Asp Phe
        210                 215                 220
Cys His Ala Ile Lys Val Gly Val Lys Tyr Thr Gln Gln Ile Ile Gln
225                 230                 235                 240
Gly Ile Gln Gln Leu Val Lys Glu Thr Gly Val Thr Lys Arg Thr Pro
                245                 250                 255
Gln Lys Leu Phe Thr Pro Ser Pro Glu Ile Val Lys Tyr Thr His Lys
                260                 265                 270
Leu Ala Met Glu Arg Leu Tyr Ala Val Phe Thr Asp Tyr Glu His Asp
            275                 280                 285
Lys Val Ser Arg Asp Glu Ala Val Asn Lys Ile Arg Leu Asp Thr Glu
        290                 295                 300
Glu Gln Leu Lys Glu Lys Phe Pro Glu Ala Asp Pro Tyr Glu Ile Ile
305                 310                 315                 320
Glu Ser Phe Asn Val Val Ala Lys Glu Val Phe Arg Ser Ile Val Leu
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                    325                      330                      335
Asn Glu Tyr Lys Arg Cys Asp Gly Arg Asp Leu Thr Ser Leu Arg Asn
                340                      345                      350
Val Ser Cys Glu Val Asp Met Phe Lys Thr Leu His Gly Ser Ala Leu
                355                      360                      365
Phe Gln Arg Gly Gln Thr Gln Val Leu Cys Thr Val Thr Phe Asp Ser
            370                      375                      380
Leu Glu Ser Gly Ile Lys Ser Asp Gln Val Ile Thr Ala Ile Asn Gly
385                      390                      395                      400
Ile Lys Asp Lys Asn Phe Met Leu His Tyr Glu Phe Pro Pro Tyr Ala
                405                      410 ·                    415
Thr Asn Glu Ile Gly Lys Val Thr Gly Leu Asn Arg Arg Glu Leu Gly
                420                      425                      430
His Gly Ala Leu Ala Glu Lys Ala Leu Tyr Pro Val Ile Pro Arg Asp
            435                      440                      445
Phe Pro Phe Thr Ile Arg Val Thr Ser Glu Val Leu Glu Ser Asn Gly
            450                      455                      460
Ser Ser Ser Met Ala Ser Ala Cys Gly Gly Ser Leu Ala Leu Met Asp
465                      470                      475                      480
Ser Gly Val Pro Ile Ser Ser Ala Val Ala Gly Val Ala Ile Gly Leu
                485                      490                      495
Val Thr Lys Thr Asp Pro Glu Lys Gly Glu Ile Glu Asp Tyr Arg Leu
                500                      505                      510
Leu Thr Asp Ile Leu Gly Ile Glu Asp Tyr Asn Gly Asp Met Asp Phe
            515                      520                      525
Lys Ile Ala Gly Thr Asn Lys Gly Ile Thr Ala Leu Gln Ala Asp Ile
        530                      535                      540
Lys Leu Pro Gly Ile Pro Ile Lys Ile Val Met Glu Ala Ile Gln Gln
545                      550                      555                      560
Ala Ser Val Ala Lys Lys Glu Ile Leu Gln Ile Met Asn Lys Thr Ile
                565                      570                      575
Ser Lys Pro Arg Ala Ser Arg Lys Glu Asn Gly Pro Val Val Glu Thr
                580                      585                      590
Val Gln Val Pro Leu Ser Lys Arg Ala Lys Phe Val Gly Pro Gly Gly
            595                      600                      605
Tyr Asn Leu Lys Lys Leu Gln Ala Glu Thr Gly Val Thr Ile Ser Gln
    610                      615                      620
Val Asp Glu Glu Thr Phe Ser Val Phe Ala Pro Thr Pro Ser Val Met
625                      630                      635                      640
His Glu Ala Arg Asp Phe Ile Thr Glu Ile Cys Lys Asp Asp Gln Glu
            645                      650                      655
Gln Gln Leu Glu Phe Gly Ala Val Tyr Thr Ala Thr Ile Thr Glu Ile
            660                      665                      670
Arg Asp Thr Gly Val Met Val Lys Leu Tyr Pro Asn Met Thr Ala Val
        675                      680                      685
Leu Leu His Asn Thr Gln Leu Asp Asn Glu Arg Leu Asn Ile Leu Leu
    690                      695                      700
Pro
705
```


<210> 43
<211> 705
<212> PRT
<213> Bacillus subtilis

<400> 43

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Met Gly Gln Glu Lys His Val Phe Thr Ile Asp Trp Ala Gly Arg Thr
 1               5                  10                  15
Leu Thr Val Glu Thr Gly Gln Leu Ala Lys Gln Ala Asn Gly Ala Val
            20                  25                  30
Met Ile Arg Tyr Gly Asp Thr Ala Val Leu Ser Thr Ala Thr Ala Ser
        35                  40                  45
Lys Glu Pro Lys Pro Leu Asp Phe Phe Pro Leu Thr Val Asn Tyr Glu
    50                  55                  60
Glu Arg Leu Tyr Ala Val Gly Lys Ile Pro Gly Gly Phe Ile Lys Arg
65                  70                  75                  80
Glu Gly Arg Pro Ser Glu Lys Ala Val Leu Ala Ser Arg Leu Ile Asp
            85                  90                  95
Arg Pro Ile Arg Pro Leu Phe Ala Asp Gly Phe Arg Asn Glu Val Gln
            100                 105                 110
Val Ile Ser Ile Val Met Ser Val Asp Gln Asn Cys Ser Ser Glu Met
        115                 120                 125
Ala Ala Met Phe Gly Ser Ser Leu Ala Leu Ser Val Ser Asp Ile Pro
    130                 135                 140
Phe Glu Gly Pro Ile Ala Gly Val Thr Val Gly Arg Ile Asp Asp Gln
145                 150                 155                 160
Phe Ile Ile Asn Pro Thr Val Asp Gln Leu Glu Lys Ser Asp Ile Asn
                165                 170                 175
Leu Val Val Ala Gly Thr Lys Asp Ala Ile Asn Met Val Glu Ala Gly
            180                 185                 190
Ala Asp Glu Val Pro Glu Glu Ile Met Leu Glu Ala Ile Met Phe Gly
        195                 200                 205
His Glu Glu Ile Lys Arg Leu Ile Ala Phe Gln Glu Glu Ile Val Ala
    210                 215                 220
Ala Val Gly Lys Glu Lys Ser Glu Ile Lys Leu Phe Glu Ile Asp Glu
225                 230                 235                 240
Glu Leu Asn Glu Lys Val Lys Ala Leu Ala Glu Glu Asp Leu Leu Lys
                245                 250                 255
Ala Ile Gln Val His Glu Lys His Ala Arg Glu Asp Ala Ile Asn Glu
            260                 265                 270
Val Lys Asn Ala Val Val Ala Lys Phe Glu Asp Glu Glu His Asp Glu
        275                 280                 285
Asp Thr Ile Lys Gln Val Lys Gln Ile Leu Ser Lys Leu Val Lys Asn
    290                 295                 300
Glu Val Arg Arg Leu Ile Thr Glu Glu Lys Val Arg Pro Asp Gly Arg
305                 310                 315                 320
Gly Val Asp Gln Ile Arg Pro Leu Ser Ser Glu Val Gly Leu Leu Pro
                325                 330                 335
Arg Thr His Gly Ser Gly Leu Phe Thr Arg Gly Gln Thr Gln Ala Leu
            340                 345                 350
Ser Val Cys Thr Leu Gly Ala Leu Gly Asp Val Gln Ile Leu Asp Gly
        355                 360                 365
Leu Gly Val Glu Glu Ser Lys Arg Phe Met His His Tyr Asn Phe Pro
    370                 375                 380
Gln Phe Ser Val Gly Glu Thr Gly Pro Met Arg Gly Pro Gly Arg Arg
385                 390                 395                 400
Glu Ile Gly His Gly Ala Leu Gly Glu Arg Ala Leu Glu Pro Val Ile
            405                 410                 415
Pro Ser Glu Lys Asp Phe Pro Tyr Thr Val Arg Leu Val Ser Glu Val
        420                 425                 430
Leu Glu Ser Asn Gly Ser Thr Ser Gln Ala Ser Ile Cys Ala Ser Thr
    435                 440                 445
Leu Ala Met Met Asp Ala Gly Val Pro Ile Lys Ala Pro Val Ala Gly
```

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              450                       455                         460
  Ile Ala Met Gly Leu Val Lys Ser Gly Glu His Tyr Thr Val Leu Thr
  465                       470                   475                   480
  Asp Ile Gln Gly Met Glu Asp Ala Leu Gly Asp Met Asp Phe Lys Val
                      485                       490                   495
  Ala Gly Thr Glu Lys Gly Val Thr Ala Leu Gln Met Asp Ile Lys Ile
                  500                       505                   510
  Glu Gly Leu Ser Arg Glu Ile Leu Glu Glu Ala Leu Gln Gln Ala Lys
              515                       520                   525
  Lys Gly Arg Met Glu Ile Leu Asn Ser Met Leu Ala Thr Leu Ser Glu
          530                       535                   540
  Ser Arg Lys Glu Leu Ser Arg Tyr Ala Pro Lys Ile Leu Thr Met Thr
  545                       550                   555                   560
  Ile Asn Pro Asp Lys Ile Arg Asp Val Ile Gly Pro Ser Gly Lys Gln
                      565                       570                   575
  Ile Asn Lys Ile Ile Glu Glu Thr Gly Val Lys Ile Asp Ile Glu Gln
                  580                       585                   590
  Asp Gly Thr Ile Phe Ile Ser Ser Thr Asp Glu Ser Gly Asn Gln Lys
              595                       600                   605
  Ala Lys Lys Ile Ile Glu Asp Leu Val Arg Glu Val Glu Val Gly Gln
          610                       615                   620
  Leu Tyr Leu Gly Lys Val Lys Arg Ile Glu Lys Phe Gly Ala Phe Val
  625                       630                   635                   640
  Glu Ile Phe Ser Gly Lys Asp Gly Leu Val His Ile Ser Glu Leu Ala
                      645                       650                   655
  Leu Glu Arg Val Gly Lys Val Glu Asp Val Val Lys Ile Gly Asp Glu
                  660                       665                   670
  Ile Leu Val Lys Val Thr Glu Ile Asp Lys Gln Gly Arg Val Asn Leu
              675                       680                   685
  Ser Arg Lys Ala Val Leu Arg Glu Glu Lys Glu Lys Glu Glu Gln Gln
          690                       695                   700
  Ser
  705



<210> 44
<211> 705
<212> PRT
<213> Homo sapiens


<400> 44
Asp Gly Pro Phe Leu Leu Pro Arg Arg Asp Arg Ala Leu Thr Gln Leu
  1               5                   10                  15
Gln Val Arg Ala Leu Trp Ser Ser Ala Gly Ser Arg Ala Val Ala Val
              20                  25                  30
Asp Leu Gly Asn Arg Lys Leu Glu Ile Ser Ser Gly Lys Leu Ala Arg
          35              40                  45
Phe Ala Asp Gly Ser Ala Val Val Gln Ser Gly Asp Thr Ala Val Met
      50              55                  60
Val Thr Ala Val Ser Lys Thr Lys Pro Ser Pro Ser Gln Phe Met Pro
65                  70                  75                  80
Leu Val Val Asp Tyr Arg Gln Lys Ala Ala Ala Gly Arg Ile Pro
              85                  90                  95
Thr Asn Tyr Leu Arg Arg Glu Val Gly Thr Ser Asp Lys Glu Ile Leu
              100                 105                 110
Thr Ser Arg Ile Ile Asp Arg Ser Ile Arg Pro Leu Phe Pro Ala Gly
          115                 120                 125
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Tyr Phe Tyr Asp Thr Gln Val Leu Cys Asn Leu Leu Ala Val Asp Gly
    130             135             140
Val Asn Glu Pro Asp Val Leu Ala Ile Asn Gly Ala Ser Val Ala Leu
145             150             155             160
Ser Leu Ser Asp Ile Pro Trp Asn Gly Pro Val Gly Ala Val Arg Ile
            165             170             175
Gly Ile Ile Asp Gly Glu Tyr Val Val Asn Pro Thr Arg Lys Glu Met
        180             185             190
Ser Ser Ser Thr Leu Asn Leu Val Val Ala Gly Ala Pro Lys Ser Gln
        195             200             205
Ile Val Met Leu Glu Ala Ser Ala Glu Asn Ile Leu Gln Gln Asp Phe
    210             215             220
Cys His Ala Ile Lys Val Gly Val Lys Tyr Thr Gln Gln Ile Ile Gln
225             230             235             240
Gly Ile Gln Gln Leu Val Lys Glu Thr Gly Val Thr Lys Arg Thr Pro
            245             250             255
Gln Lys Leu Phe Thr Pro Ser Pro Glu Ile Val Lys Tyr Thr His Lys
            260             265             270
Leu Ala Met Glu Arg Leu Tyr Ala Val Phe Thr Asp Tyr Glu His Asp
        275             280             285
Lys Val Ser Arg Asp Glu Ala Val Asn Lys Ile Arg Leu Asp Thr Glu
    290             295             300
Glu Gln Leu Lys Glu Lys Phe Pro Glu Ala Asp Pro Tyr Glu Ile Ile
305             310             315             320
Glu Ser Phe Asn Val Val Ala Lys Glu Val Phe Arg Ser Ile Val Leu
            325             330             335
Asn Glu Tyr Lys Arg Cys Asp Gly Arg Asp Leu Thr Ser Leu Arg Asn
        340             345             350
Val Ser Cys Glu Val Asp Met Phe Lys Thr Leu His Gly Ser Ala Leu
        355             360             365
Phe Gln Arg Gly Gln Thr Gln Val Leu Cys Thr Val Thr Phe Asp Ser
    370             375             380
Leu Glu Ser Gly Ile Lys Ser Asp Gln Val Ile Thr Ala Ile Asn Gly
385             390             395             400
Ile Lys Asp Lys Asn Phe Met Leu His Tyr Glu Phe Pro Pro Tyr Ala
            405             410             415
Thr Asn Glu Ile Gly Lys Val Thr Gly Leu Asn Arg Arg Glu Leu Gly
        420             425             430
His Gly Ala Leu Ala Glu Lys Ala Leu Tyr Pro Val Ile Pro Arg Asp
        435             440             445
Phe Pro Phe Thr Ile Arg Val Thr Ser Glu Val Leu Glu Ser Asn Gly
    450             455             460
Ser Ser Ser Met Ala Ser Ala Cys Gly Gly Ser Leu Ala Leu Met Asp
465             470             475             480
Ser Gly Val Pro Ile Ser Ser Ala Val Ala Gly Val Ala Ile Gly Leu
            485             490             495
Val Thr Lys Thr Asp Pro Glu Lys Gly Glu Ile Glu Asp Tyr Arg Leu
        500             505             510
Leu Thr Asp Ile Leu Gly Ile Glu Asp Tyr Asn Gly Asp Met Asp Phe
        515             520             525
Lys Ile Ala Gly Thr Asn Lys Gly Ile Thr Ala Leu Gln Ala Asp Ile
    530             535             540
Lys Leu Pro Gly Ile Pro Ile Lys Ile Val Met Glu Ala Ile Gln Gln
545             550             555             560
Ala Ser Val Ala Lys Lys Glu Ile Leu Gln Ile Met Asn Lys Thr Ile
            565             570             575
Ser Lys Pro Arg Ala Ser Arg Lys Glu Asn Gly Pro Val Val Glu Thr
```

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                580                    585                   590
 Val Gln Val Pro Leu Ser Lys Arg Ala Lys Phe Val Gly Pro Gly Gly
             595                    600                   605
 Tyr Asn Leu Lys Lys Leu Gln Ala Glu Thr Gly Val Thr Ile Ser Gln
         610                    615                   620
 Val Asp Glu Glu Thr Phe Ser Val Phe Ala Pro Thr Pro Ser Val Met
 625                    630                   635                   640
 His Glu Ala Arg Asp Phe Ile Thr Glu Ile Cys Lys Asp Asp Gln Glu
                 645                    650                   655
 Gln Gln Leu Glu Phe Gly Ala Val Tyr Thr Ala Thr Ile Thr Glu Ile
             660                    665                   670
 Arg Asp Thr Gly Val Met Val Lys Leu Tyr Pro Asn Met Thr Ala Val
         675                   ,680                    685
 Leu Leu His Asn Thr Gln Leu Asp Asn Glu Arg Leu Asn Ile Leu Leu
     690                    695                    700
 Pro
 705


 <210> 45
 <211> 245
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> Consensus sequence between Homo sapiens OLD-35 and
       Bacillus subtilis PNPase

 <400> 45
 Asp Arg Leu Gly Leu Ala Ala Gly Gly Asp Thr Ala Val Thr Ala Pro
  1             5                   10                  15
 Pro Phe Pro Leu Val Tyr Ala Gly Ile Pro Arg Glu Ser Lys Leu Ser
             20                   25                  30
 Arg Ile Asp Arg Ile Arg Pro Leu Phe Gly Gln Val Val Asp Ala Gly
         35                   40                  45
 Ser Ala Leu Ser Ser Asp Ile Gly Pro Val Gly Ile Asp Asn Pro Thr
     50                   55                  60
 Ser Asn Leu Val Val Ala Gly Lys Ile Met Glu Ala Ala Ala Ile Gly
 65                   70                  75                  80
 Ile Val Gly Lys Lys Leu Phe Glu Leu Ala Glu Leu Glu Lys Glu Val
             85                   90                  95
 Glu Val Arg Ile Glu Arg Asp Gly Arg Arg Ser Glu Val His Gly Ser
             100                  105                 110
 Leu Phe Arg Gly Gln Thr Gln Leu Thr Leu Asp Lys Phe Met His Tyr
         115                  120                 125
 Phe Pro Glu Gly Gly Arg Arg Glu Gly His Gly Ala Leu Glu Ala Leu
         130                  135                 140
 Pro Val Ile Pro Asp Phe Pro Thr Arg Ser Glu Val Leu Glu Ser Asn
 145                  150                 155                 160
 Gly Ser Ser Ala Ser Cys Leu Ala Met Asp Gly Val Pro Ile Val Ala
             165                  170                 175
 Gly Ala Gly Leu Val Glu Tyr Leu Thr Asp Ile Gly Glu Asp Gly Asp
             180                  185                 190
 Met Asp Phe Lys Ala Gly Thr Lys Gly Thr Ala Leu Gln Asp Ile Lys
         195                  200                 205
 Gly Ile Glu Ala Gln Gln Ala Glu Ile Leu Met Thr Ser Arg Pro Thr
     210                  215                 .220
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Lys Gly Pro Gly Lys Glu Thr Gly Val Ile Thr Ser Ala Ile Gln Leu
225   230   235   240
Gly Val Lys Leu Glu
                245

<210> 46
<211> 47
<212> RNA
<213> Homo sapiens

<400> 46
uaauauuuau auauuuauau uuuuaaaaua uuuauuuauu uauuuaa   47

<210> 47
<211> 11
<212> RNA
<213> Homo sapiens

<400> 47
uauuuauuua a   11

<210> 48
<211> 33
<212> RNA
<213> Homo sapiens

<400> 48
uauuuauuua aauauuuaaa uuuuauauuu aau   33

<210> 49
<211> 62
<212> RNA
<213> Homo sapiens

<400> 49
guuuuuaauu uauuuauuaa gauggauucu cagauauuua uauuuuuuau uuuauuuuuu 60
uu   62

<210> 50
<211> 111
<212> RNA
<213> Homo sapiens

<400> 50
auuuacaugu gccauuuuuu uaauucgagu aacccauauu uguuuaauug uauuuacauu 60
auaaaucaag aaauauuuau uauuaaaagu aagucauuua uacaucuuag a   111

<210> 51
<211> 34
<212> RNA
<213> Homo sapiens

<400> 51
aauuaauuua uuauuuauuu auuauuuauu uauu   34